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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/801,997 | 03/16/2004 | William J. Begley | 87887AEK | 3335 |

7590 08/30/2007
Paul A. Leipold
Eastman Kodak Company
Patent Legal Staff
343 State Street
Rochester, NY 14650-2201

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| EXAMINER |
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GARRETT, DAWN L

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| ART UNIT | PAPER NUMBER |
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1774

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08/30/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/801,997

Applicant(s)

BEGLEY ET AL.

Examiner

Dawn Garrett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) 2-5 and 9-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,6-8,13-18,24-33,41,42,46 and 47 is/are rejected.
- 7) ☒ Claim(s) 19-23,34-40,43,44 and 48-52 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This Office action is responsive to the amendment filed June 18, 2007. Claims 15 and 45 were amended. Claims 1-52 are present. Claims 2-5 and 9-12 are withdrawn.

Applicant previously elected the following species without traverse:

A naphthacene compound of Formula I where R2 and R4 are aryl and R1, R3, R5, and R6 are alkyl and with the ultimate species = Inv 2 at page 15.

2. The objection to claim 15 is withdrawn due to the amendment.
3. The rejection of claim 45 under 35 USC 112, second paragraph, set forth in the Office action mailed February 20, 2007 is withdrawn due to the amendment.
4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Claims 1, 6-8, 13-18, 24-33, 41, 42, 46, and 47 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuura et al. (US 5,503,910) in view of Sato et al. (JP 04-335087). Matsuura teaches organic light emitting devices having first and second emitting layers (see abstract). Matsuura teaches a bluish layer and a reddish/yellow layer (see col. 3, lines 11-19). There may be a layer with a hole transporting material and may emit in the 580nm to 650nm range per the "hole transporting layer" (see col. 3, lines 20-28). The reference teaches rubrene as a dopant (see col.61, bottom compound). The device further includes an electron transporting layer (see col. 66, lines 49-56).

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Per claims 15-17, the amount of rubrene compound used in the layer is 0.1-10 mol % (see col. 61, lines 54-58).

Per claim 18, see col. 37-40 for styryl compounds for the blue emitting layer.

The layer comprising the reddish emitting compound (which can be hole transporting as set forth above) is around 40 nm in thickness (see col. 67, lines 35-37) per claim 24.

Per claim 25, a further hole transporting layer may be formed (see Examples, col. 67, lines 19-31).

Per claim 27, the second light emitting layer is around 20 nm in thickness (see col. 67, lines 48-49).

Per claim 28 a hole injecting layer may be formed (see col. 64, lines 21-33).

Per claim 29, CuPc may be included (see col. 65, lines 30-40).

Per claim 30, the thickness may be 1 nm to 10 micrometers (see col. 66, lines 4-6).

Per claim 31, the electron transporting layer may be 1 nm to 10 micrometers (see col. 66, lines 54-56).

Per claim 32, magnesium and silver alloy cathodes are taught (see col. 68, lines 2-3).

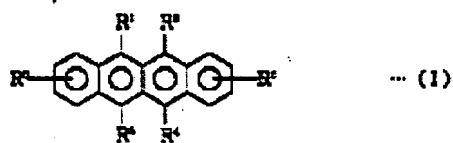
Per claim 33, the cathode may be transparent (see col. 63, lines 17-20).

Per claims 41 and 47, there may be a layer of metal phthalocyanines adjacent the cathode (see col. 66, lines 39-41). Per claim 42, the thickness of such a layer is 1 nm to 10 micrometers (see col. 66, lines 54-56).

Per claim 46, hole transporting material includes arylamines (see col. 64, lines 34-55).

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Matsuura fails to teach the specific rubrene species currently under consideration, but does teach compounds such as rubrene are appropriate. Sato teaches in analogous art naphthacene derivatives of the following formula for an EL device:



R1-R4 may include alkyl or substituted aromatic hydrocarbon groups and R5 and R6 may include alkyl groups (see abstract). Although Sato fails to specify an aryl group as a possible substituent group for the aromatic hydrocarbon group, aryl groups are well known as substituents. It would have been obvious to one of ordinary skill in the art to have formed the Matsuura device using the rubrene derivatives taught by Sato in place of the rubrene taught in Matsuura, because one would expect the rubrene derivatives to be similarly useful as a light emitting material for the Matsuura device.

6. The terminal disclaimer filed on June 18, 2007 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration dates of US 7,087,320; US 7,052,785; US 7,083,865; and patent application US 10/801,288 has been reviewed and is accepted. The terminal disclaimer has been recorded. The previous double patenting rejections are now withdrawn.

7. Claims 19-23, 34-40, 43-45, and 48-52 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The closest prior art, Matsuura (discussed above), fails to teach the limitations of these claims in combination with the other required limitations.

Response to Arguments

8. Applicant's arguments filed June 18, 2007 have been fully considered but they are not persuasive.

Applicant states they "believe that the comparative data in the application overcomes the basis for the Examiner's rejections." The examiner submits the comparative data in the specification is not sufficient to overcome the rejection of record. Applicant discusses only two inventive compounds, which is not sufficient to show representative unexpected results over all of the possibilities of naphthacene derivative compounds set forth by applicant. Additionally, it is noted that Inv-2 is within the elected species of compound, but the compound is not considered sufficient to show unexpected results for all of the compounds within the elected species. It is respectfully noted that none of the comparative examples in Tables 1 and 2 test the dopants at the exact same concentration as the inventive compounds Inv-1 and Inv-2. Applicant sets forth at least 41 inventive compounds and a possibility of many more within the definitions of instant formulas (I) and (III of withdrawn claim 10). Data only directed to two inventive compounds is insufficient to establish unexpected results for the numerous compounds claimed. Additionally, the number of comparative compounds is too few in number to be representative of the prior art and to clearly show unexpectedly good results for the compounds according to instant formula (I).

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Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is (571) 272-1523. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on (571) 272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dawn Garrett/
Dawn Garrett
Primary Examiner
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